

## REMARKS

Reconsideration is respectfully requested in view of any changes to the claims and the remarks herein. Please contact the undersigned to conduct a telephone interview in accordance with MPEP 713.01 to resolve any remaining requirements and/or issues prior to sending another Office Action. Relevant portions of MPEP 713.01 are included on the signature page of this amendment.

References to Applicants' specification will be by referring to the column and line number from issued parent patent US 5,706,067.

Support in the specification for claims 77, 57-63, 67-70 and 71 is as given the tables below.

CLAIM 57	
A liquid crystal display apparatus for displaying an image, comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate" Fig. 1 shows "metal layer 24 and/or electrode mirror 30." (Col. 3, lines 30 - 31) of each of the plurality of liquid crystal devices.
a plurality of circuit elements being formed on said substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." Fig. 1 shows "metal layer 24 and/or electrode mirror 30" (Col. 3, lines 30 - 31) of each of the plurality of liquid crystal devices.
a first electrode connected with said circuit element and positioned over said circuit element;	Original Claim 1, lines 5 - 7 recites "a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes." "Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO), a bottom electrode 30 which functions as an electrode mirror: "Col. 3, lines 3 - 5.

<p>a frame disposed along the edge of said first electrode, with said frame comprising an optical blocking material for blocking incident light from leaking into said switching element;</p>	<p>Original claim 2 recites: "the spacial light modulator array of claim 1 wherein said reflector/absorber layer overlaps said edge of said mirror." As shown in Fig. 1, the reflector/absorber layer 34 is at the edge of electrode 24, 30 and blocks incident light 58 from leaking into switching elements below. The reflector/absorber layer 34 at the edge is the frame.</p>
<p>a storage capacitor electrically connected with said first electrode and positioned under said first electrode;</p>	<p>Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as shown in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold the voltage on electrode 1 mirror 30." Col. 3, lines 31 - 38. The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.</p>
<p>an optical reflector;</p>	<p>"Electrode/mirror 30" Col. 3, lines 4 - 13.</p>
<p>a first orientation film formed on said optical reflector;</p>	<p>U.S. Patent 4,999,619 cited at Col. 1, lines 34 - 36 gives details on liquid crystal devices. Claim 2 of U.S. 4,999,619 states "in claim 3 a display device as claimed in claim 2, characterized in that the device comprises a polarizer and an analyzer, located in the desired paths of the incident and reflected beams, respectively, and in that the supporting plates have orientation layers giving the molecules of the liquid crystal a direction of orientation which is substantially parallel to the supporting plates or extends at a polarizer extends at an angle to the direction of</p>

	orientation of the molecules in the area of the first supporting plate.
a second orientation film spaced apart from said first orientation film;	
a second transparent electrode;	"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.
an oriented layer of liquid crystal material positioned between said first and second electrodes; and	"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.
said optical blocking means comprises an anti-reflection surface.	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

CLAIM 58	
A liquid crystal display apparatus for displaying an image, comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... On a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of circuit elements being formed on said substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the

	plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a first electrode connected with said circuit element and positioned over said circuit element;	Original Claim 1, lines 5 - 7 recites: "a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes." "Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO), a bottom electrode 30 which functions as an electrode mirror: "Col. 3, lines 3 - 5.
optical blocking means formed under said first electrode;	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.
a storage capacitor electrically connected with said first electrode and positioned under said first electrode;	Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as show in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold the voltage on electrode 1 mirror 30." Col. 3, lines 31 - 38. The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.
an optical reflector;	"Electrode/mirror 30" Col. 3, lines 4 - 13.
a first orientation film formed on said optical reflector;	U.S. Patent 4,999,619 cited at Col. 1, lines 34 - 36 gives details on liquid crystal devices. Claim 2 of U.S. 4, 999,619 states "in claim 3 a display device as claimed in claim 2,

	characterized in that the device comprises a polarizer and an analyzer, located in the desired paths of the incident and reflected beams, respectively, and in that the supporting plates have orientation layers giving the molecules of the liquid crystal a direction of orientation which is substantially parallel to the supporting plates or extends at a polarizer extends at an angle to the direction of orientation of the molecules in the area of the first supporting plate.
a second orientation film spaced apart from said first orientation film;	U.S. Patent 4,999,619 cited at Col. 1, lines 34 - 36 gives details on liquid crystal devices. Claim 2 of U.S. 4, 999,619 states "in claim 3 a display device as claimed in claim 2, characterized in that the device comprises a polarizer and an analyzer, located in the desired paths of the incident and reflected beams; respectively, and in that the supporting plates have orientation layers giving the molecules of the liquid crystal a direction of orientation which is substantially parallel to the supporting plates or extends at a polarizer extends at an angle to the direction of orientation of the molecules in the area of the first supporting plate.
a second transparent electrode;	"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.
an oriented layer of liquid crystal material positioned between said first and second electrodes; and	"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.
said optical blocking means comprises an anti-reflection surface.	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

<b>CLAIM 59</b>	
<b>A liquid crystal display apparatus for displaying an image, comprising:</b>	The field of the invention states "This invention relates to display devices." Col. 1, lines 8 - 11.
<b>a substrate;</b>	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
<b>a plurality of switching elements being formed on said substrate;</b>	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
<b>a first electrode connected with said switching element and positioned over said switching element;</b>	Original Claim 1, lines 5 - 7 recites "a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes." "Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO), a bottom electrode 30 which functions as an electrode mirror: "Col. 3, lines 3 - 5.
<b>a storage capacitor electrically connected with said first electrode and positioned under said first electrode;</b>	Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as shown in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold

	the voltage on electrode 1 mirror 30.” Col. 3, lines 31 - 38. The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.
an optical reflector;	“Electrode/mirror 30.” Col. 3, lines 4 - 13.
a second transparent electrode on which said second orientation film is formed;	“A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor.” Col. 2, lines 63 - 66. Substrate 14 is the first substrate.
an oriented layer of liquid crystal material positioned between said first and second electrodes;	U.S. Patent 4,999,619 cited at Col. 1, lines 34 - 36 gives details on liquid crystal devices. Claim 2 of U.S. 4, 999,619 states “in claim 3 a display device as claimed in claim 2, characterized in that the device comprises a polarizer and an analyzer, located in the desired paths of the incident and reflected beams, respectively, and in that the supporting plates have orientation layers giving the molecules of the liquid crystal a direction of orientation which is substantially parallel to the supporting plates or extends at a polarizer extends at an angle to the direction of orientation of the molecules in the area of the first supporting plate.
substantially nonconductive optical blocking means positioned between said first electrode and said switching element for blocking an incident light from leaking into said switching element; and	Original Claim 1, lines 8 - 10 “a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light.” “With the structure shown in Fig. 1, shielding the semiconductor devices in substrate 14 forming electrical circuits 16 from light is accomplished by the combination of electrode/mirror 30, and reflector/absorber layer 34. Both the electrode/mirror 30 and reflector/absorber layer 34 are sufficiently thick so that they are optically opaque. Light or radiant energy 54 and 58 incident in opening 56 between electrode/mirrors 30 and 33 (partially shown on the left side of 30 in Fig. 1) of liquid crystal device would enter dielectric layer 46 and would require multiple reflections as shown by arrow 59 between top surface 55 of

	reflector/absorber layer 34 and the bottom surface of electrode/mirror 30 to reach dielectric layers 44, 42, 40, and 36 and semiconductor substrate 14 containing electrical circuits 16 (not shown.) Col. 3, lines 51 - 65.
said optical blocking means comprises an anti-reflection surface.	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

CLAIM 60	
A liquid crystal display apparatus for displaying an image, comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of switching elements being formed on said substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a first electrode connected with said switching element and positioned over said switching element;	Original Claim 1, lines 5 - 7 recites "a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes." "Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO), a bottom electrode 30 which functions as an electrode mirror: "Col. 3, lines 3 - 5.

<p>a frame disposed along an edge of said first electrode, with said frame comprising an optical blocking insulating material for blocking incident light from leaking into said switching element;</p>	<p>Original claim 2 recites: "the spacial light modulator array of claim 1 wherein said reflector/absorber layer overlaps said edge of said mirror." As shown in Fig. 1, the reflector/absorber layer 34 is at the edge of electrode 24, 30 and blocks incident light 58 from leaking into switching elements below. The reflector/absorber layer 34 at the edge is the frame.</p>
<p>a storage capacitor electrically connected with said first electrode and positioned under said first electrode;</p>	<p>Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as shown in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold the voltage on electrode 1 mirror 30." Col. 3, lines 31 - 38. The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.</p>
<p>an optical reflector;</p>	<p>"Electrode/mirror 30" Col. 3, lines 4 - 13.</p>
<p>a second transparent electrode on which said second orientation film formed;</p>	<p>"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.</p>
<p>an oriented layer of liquid crystal material positioned between said first and second electrodes; and</p>	<p>"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.</p>
<p>said optical blocking</p>	<p>"A reflector/absorber layer 34 functions to</p>

<p>material comprises an <u>antireflection</u> anti-reflection surface coating.</p>	<p>block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>
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CLAIM 61	
<p><b>A liquid crystal display apparatus for displaying an image, comprising:</b></p>	<p>The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.</p>
<p><b>a substrate;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>a plurality of switching elements being formed on said substrate;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>a first electrode connected with said switching element and positioned over said switching element;</b></p>	<p>Original Claim 1, lines 5 - 7 recites "a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across its electrodes." "Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO), a bottom electrode 30 which functions as an electrode mirror: "Col. 3, lines 3 - 5.</p>
<p><b>nonconductive optical blocking material formed under said first electrode;</b></p>	<p>Original Claim 1, lines 8 - 10 "a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light." "With the structure shown in Fig. 1, shielding the semiconductor devices in substrate 14 forming electrical</p>

	<p>circuits 16 from light is accomplished by the combination of electrode/mirror 30, and reflector/absorber layer 34. Both the electrode/mirror 30 and reflector/absorber layer 34 are sufficiently thick so that they are optically opaque. Light or radiant energy 54 and 58 incident in opening 56 between electrode/mirrors 30 and 33 (partially shown on the left side of 30 in Fig. 1) of liquid crystal device would enter dielectric layer 46 and would require multiple reflections as shown by arrow 59 between top surface 55 of reflector/absorber layer 34 and the bottom surface of electrode/mirror 30 to reach dielectric layers 44, 42, 40, and 36 and semiconductor substrate 14 containing electrical circuits 16 (not shown.) Col. 3, lines 51 - 65.</p>
<p>a storage capacitor electrically connected with said first electrode and positioned under said first electrode;</p>	<p>Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as shown in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold the voltage on electrode 1 mirror 30." Col. 3, lines 31 - 38: The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.</p>
<p>an optical reflector formed on said first electrode;</p>	<p>"Electrode/mirror 30" Col. 3, lines 4 - 13.</p>
<p>a second transparent electrode on which said second orientation film is formed;</p>	<p>"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.</p>

<p>an oriented layer of liquid crystal material positioned between said first and second electrodes.</p>	<p>"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.</p>
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<p><b>CLAIM 62</b></p>	
<p><b>A spatial light modulator array for modulating light to form an image comprising:</b></p>	<p>The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.</p>
<p><b>a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>an absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light;</b></p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>
<p><b>said absorber layer having an edge overlapping an</b></p>	<p>Original Claim 1, lines 8 - 10 "a reflector/absorber layer positioned and patterned with respect to said mirrors for</p>

edge of said mirror to form an overlapping region to decrease ambient light from passing into said semiconductor substrate; and

shielding said plurality of electrical circuits from ambient light." "With the structure shown in Fig. 1, shielding the semiconductor devices in substrate 14 forming electrical circuits 16 from light is accomplished by the combination of electrode/mirror 30, and reflector/absorber layer 34. Both the electrode/mirror 30 and reflector/absorber layer 34 are sufficiently thick so that they are optically opaque. Light or radiant energy 54 and 58 incident in opening 56 between electrode/mirrors 30 and 33 (partially shown on the left side of 30 in Fig. 1) of liquid crystal device would enter dielectric layer 46 and would require multiple reflections as shown by arrow 59 between top surface 55 of reflector/absorber layer 34 and the bottom surface of electrode/mirror 30 to reach dielectric layers 44, 42, 40, and 36 and semiconductor substrate 14 containing electrical circuits 16 (not shown.) Col. 3, lines 51 - 65.

said absorber layer comprises an anti-reflection coating.

"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

**CLAIM 63**

A spatial light modulator array for modulating light to form an image comprising:

a plurality of liquid crystal devices positioned over respective mirrors on a

The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.

Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the

dielectric layer on a semiconductor substrate;	plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a reflector layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light;	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.
said reflector layer having an edge overlapping an edge of said mirror to form an overlapping region to decrease ambient light from passing into said semiconductor substrate; and	Original Claim 1, lines 8 - 10 "a reflector/absorber layer positioned and patterned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light." "With the structure shown in Fig. 1, shielding the semiconductor devices in substrate 14 forming electrical circuits 16 from light is accomplished by the combination of electrode/mirror 30, and reflector/absorber layer 34. Both the electrode/mirror 30 and reflector/absorber layer 34 are sufficiently thick so that they are optically opaque. Light or radiant energy 54 and 58 incident in opening 56 between electrode/mirrors 30 and 33 (partially shown on the left side of 30 in Fig. 1) of liquid crystal device would enter dielectric layer 46 and would require multiple reflections as shown by arrow 59 between top surface 55 of reflector/absorber layer 34 and the bottom surface of electrode/mirror 30 to reach dielectric layers 44, 42, 40, and 36 and

	semiconductor substrate 14 containing electrical circuits 16 (not shown.) Col. 3, lines 51 - 65.
<u>said reflector layer comprises an anti-reflection coating.</u>	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

CLAIM 67	
A liquid crystal display comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a light blocking region positioned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light;	"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.

<p>said light blocking region being disposed between said mirrors to decrease ambient light from passing into said semiconductor substrate; and</p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>
<p>said light blocking region comprising an anti-reflection coating.</p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>

CLAIM 68	
A liquid crystal apparatus comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a plurality of liquid crystal devices positioned over respective mirrors on a dielectric layer on a semiconductor substrate;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of electrical circuits formed in said semiconductor substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a light blocking region	"A reflector/absorber layer 34 functions to block or attenuate ambient light and

<p>positioned with respect to said mirrors for shielding said plurality of electrical circuits from ambient light; and</p>	<p>impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>
<p><u>said light blocking region comprising an anti-reflection coating.</u></p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>

<p><b>CLAIM 69</b></p>	
<p><b>A liquid crystal apparatus comprising:</b></p>	<p>The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.</p>
<p><b>a plurality of liquid crystal devices positioned over respective mirrors on substrate;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;</b></p>	<p>Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.</p>
<p><b>a light blocking region positioned with respect to said mirrors for shielding said plurality of electrical</b></p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom</p>

circuits from ambient light; and	electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.
<u>said light blocking region comprising an anti-reflection coating.</u>	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

CLAIM 70	
A liquid crystal apparatus comprising:	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a plurality of liquid crystal devices positioned on substrate,	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a plurality of electrical circuits formed in said substrate coupled to said liquid crystal devices, respectively, for placing a voltage across electrodes of said liquid crystal devices;	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.
a light blocking region positioned between said liquid crystal devices for shielding said plurality of electrical circuits from ambient light; and	"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.

<p>said light blocking region comprising an anti-reflection coating.</p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>
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<p><b>CLAIM 71</b></p> <p>A display unit according to claims 73, 75 or 76, wherein said first substrate has an insulation layer between said reflection electrode and said shading layer to form a holding capacitor.</p>	<p>Layers 24, 33, 46, 55, and 34 form a capacitor. Layer 20, 38 and 18 form a capacitor. Original claim 1 recites: "each of said mirrors and said reflector/absorber layer forms a capacitor." The first electrode 30 is electrically connected by stud 17 to metal layer 22 as shown in Fig. 1, Col. 2, lines 59 - Col. 3, lines 13. The abstract describes a "pixel storage capacitor to hold the voltage across the liquid crystal device." "To form a storage capacitor 48 between metal layer 24 and reflector absorber layer 34. Capacitor 48 is coupled ... With capacitor 50 formed by polysilicon layer 18, dielectric layer 38 and polysilicon layer 20 which functions to hold the voltage on electrode 1 mirror 30." Col. 3, lines 31 - 38. The first electrode 30, is electrically connected by stud 17 to metal layer 22, see Fig. 1.</p>
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Claim 77	Support in specification
A display unit comprising	The field of the invention states "This invention relates to display devices" Col. 1, lines 8 - 11.
a first substrate comprising a plurality of reflection electrodes	Original Claim 1 lines 5 - 7 recites: "a plurality of liquid crystal devices positioned ... on a semiconductor substrate." In Fig. 1 is shown "metal layer 24 and/or electrode mirror 30." Col. 3, lines 30 - 31 of each of the plurality of liquid crystal devices. The semiconductor substrate is the first substrate.

<p>with a gap portion formed therebetween,</p>	<p>"FIG. 11 shows a scanning electron micrograph of an array 11 of spatial light modulators 10" Col. 8, lines 46 - 47. "A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spacial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30." Col. 3, lines 8 - 13. "Light or radiant energy 54 and 58 incident in openings 56 between electrode/mirrors 30 and 33 (partially shown on the leftside of 30 in Fig. 1) of liquid crystal device 12." Col. 3 lines 56 - 59.</p>
<p>a second substrate opposing said first substrate having a transparent electrode, Col. 3, lines 2 - 5. ITO is on the second substrate glass cover plate 29. "</p>	<p>"A liquid crystal device 12 is shown positioned over substrate 14 which may be a single crystal semiconductor." Col. 2, lines 63 - 66. Substrate 14 is the first substrate.</p>
<p>and a liquid crystal material being put between said first and said second substrates</p>	<p>"Liquid crystal device 12 comprises a liquid crystal material 26, a top electrode 28 which may be for example In-Sn oxide (ITO) a bottom electrode mirror 30 which functions as an electrode and a mirror." Col. 3, lines 2 - 5. ITO is on the second substrate glass cover plate 29. "Fig. 11 shows a scanning electrode micrograph of array 11 of spacial light modulators 10 without liquid crystal material 26, top electrode 28 or glass plate 29 shown on Fig. 10" Col. 8, lines 46 - 49.</p>
<p>wherein said first substrate has a shading layer at least part of said gap portion and wherein said shading layer exhibits a different reflection characteristic from said reflection electrodes, said shading layer comprises an anti-reflection surface</p>	<p>"A reflector/absorber layer 34 functions to block or attenuate ambient light and impinging light on spatial light modulator 10 and passing through openings or gaps 56 between mirrors such as bottom electrode/mirror 33 and bottom electrode mirror 30 shown by arrows 54, 58 and 59 from passing into semiconductor substrate 14." Col. 3, lines 8 - 13.</p>

In view of the changes to the claims and the remarks herein, the Examiner is respectfully requested to reconsider the above-identified application. If the Examiner wishes to discuss the application further, or if additional information would be required, the undersigned will cooperate fully to assist in the prosecution of this application.

Please charge any fee necessary to enter this paper and any previous paper to deposit account 09-0468.

If the above-identified Examiner's Action is a final Action, and if the above-identified application will be abandoned without further action by applicants, applicants file a Notice of Appeal to the Board of Appeals and Interferences appealing the final rejection of the claims in the above-identified Examiner's Action. Please charge deposit account 09-0468 any fee necessary to enter such Notice of Appeal.

In the event that this amendment does not result in allowance of all such claims, the undersigned attorney respectfully requests a telephone interview at the Examiner's earliest convenience.

MPEP 713.01 states in part as follows:

Where the response to a first complete action includes a request for an interview or a telephone consultation to be initiated by the examiner, ... the examiner, as soon as he or she has considered the effect of the response, should grant such request if it appears that the interview or consultation would result in expediting the case to a final action.

Respectfully submitted,

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